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Carter, and any one can with patience and care observe the life history of the marine sponges.

It seems, then, that the life history of the sponges consists of the following stages:—

1. Fertilization of a true egg by genuine spermatozoa; both eggs and sperm cells arising from the inner germ-layer.
2. Total segmentation of the yolk, or protoplasmic contents of the egg.
3. A ciliated embryo.
4. A free swimming "planula"-like larva, with two germ-layers, not, however, originating as in the true planula of the acalephs. The planula becomes sessile, spicules are developed in the hinder end of the body, afterwards a gastro-vascular cavity appears, constituting the
5. Gastrula stage.
6. A mouth and side openings appear and the true sponge characters are assumed.

LITERATURE.

Lieberkühn. Zur Entwicklungsgeschichte der Spongillen (Muller's Archiv, 1856.)

O. Schmidt. Die Spongien des Adriatischen Meeres. Leipsig. 1862-66.

Clark. Spongiæ Ciliatæ or Infusoria Flagellata. 1867.

Hæckel. Die Kalkschwämme. Eine Monograph. 2 vols. and atlas. Berlin, 1872.

Metschnikoff. Zur Entwicklungsgeschichte der Kalkschwämme. (Siebold and Kôlliker's Zeitschrift. (Feb., 1874.)

Carter. Development of the Marine Sponges, etc. (Annals & Mag. Nat. Hist., Nov. and Dec., 1874.)

REVIEWS AND BOOK NOTICES.

THE SPIDERS OF FRANCE.¹—Mr. E. Simon has just published the first part of a monograph of the Arachnida of France, forming an octavo volume of two hundred and seventy pages, with three plates. Beginning with the Araneæ he describes the Epeiridæ, Uloboridæ, Dictynidæ, Enyoidæ and Pholcidæ. This arrangement is not meant for a natural one, but has been adopted because the work on these families was first finished by the author. The introduction is promised in a future part, but the present volume begins with a short review of the principal descriptive works on

¹ Les Arachnides de France. Par E. Simon, Tome 1, Paris, 1874, with 3 plates 8vo. pp. 270.

European spiders, a list of definitions of terms used in descriptions and some general remarks on classification. The arrangement of families adopted by Simon is the following.

1st suborder. *Araneæ oculatæ*; *Attidæ*; *Lycosidæ*; *Oxyopidæ*.

2nd suborder. *Araneæ veræ*; *Sparassidæ*; *Thomisidæ*; *Palpimanidæ*; *Eresidæ*; *Epeiridæ*; *Ulobaridæ*; *Therididæ*; *Pholcidæ*; *Hersilidæ*; *Urocteidæ*; *Eryoidæ*; *Agelenidæ*; *Dictynidæ*; *Drassidæ*.

3rd suborder. *Araneæ graphosæ*; *Scytodidæ*; *Dysderidæ*;

4th suborder. *Araneæ theraphosæ*; *Filistatidæ*; *Avicularidæ*.

The first suborder is founded on the great development of the head and front legs in the *Attidæ*, the third is the *Senoculinæ* of Blackwall, the fourth the *Theraphores* of Walckenaer, and the second comprises all the other families.

For convenience in identification, tables are given of the most prominent characters of the genera of each family and the species of each genus.

The plates give a figure of one spider from each genus in the *Epeiridæ*, *Ulobaridæ*, and *Dictynidæ*, and a few enlarged figures of feet, palpi and copulatory organs.

The second part containing the *Urocteidæ*, *Agelenidæ*, *Thomisidæ* and *Sparassidæ*, is to be published next April. The work will be quite useful to students in this country.—J. H. E.

WHEELER'S SURVEY OF THE TERRITORIES.¹—Judging by the present report, a good deal of geological and biological work has been accomplished in connection with the regular topographical work of the survey. Three parties were in the field, and explored portions of Utah, Arizona, Colorado and New Mexico. Considerable geological work was done, while Dr. J. T. Rothrock and assistant John Wolfe collected nearly 12,000 specimens of plants, representing over 1,100 species. A goodly number of animals were collected, and have been distributed to specialists. The report is accompanied by a number of descriptions of fossil vertebrates from New Mexico by Prof. Cope.

¹ Annual Report upon the Geographical Explorations and Surveys west of the 100th Meridian in California, Nevada, Utah, Arizona, Colorado, New Mexico, Wyoming and Montana. By G. M. Wheeler, U. S. Engineer. Washington, 1874. 8vo, pp. 130, with a map.